



**THIRD SPACE
LEARNING**

4th Grade Math Problems

18 Guided Problems With
Answers & Tips For Teachers

4th grade

How to use this resource

Here is a collection of fourth grade math problems organized by concepts, including math word problems and reasoning problems. Each problem has an answer key, a worked example and a detailed explanation of how to answer the question.

These are suitable for use as:

- Additional practice before an assessment
- A Do Now activity
- An Exit Slip to check for understanding after a lesson

Place value

1. John wrote the number 39,598. How many times greater is the value of the 9 in the thousands place than the 9 in the tens place?

Answer:

- The 9 in the thousands place is 100 times greater than the 9 in the tens place because $10 \times 10 = 100$.

This question emphasizes the relationship between the value of each digit in a number. Fourth grade math skills require students to see that there is a 10:1 relationship between the value of digits in each place. Place value charts are a great tool for students to support their place value knowledge!



Ten thousands	Thousands	Hundreds	Tens	Ones
3	9	5	9	8

$$10 \times 10 = 100$$

The 9 in the thousands place is 100 times greater than the 9 in the tens place.

Place value

2. Which is greater: 33,598 or 33,589? Prove it.

Answer:

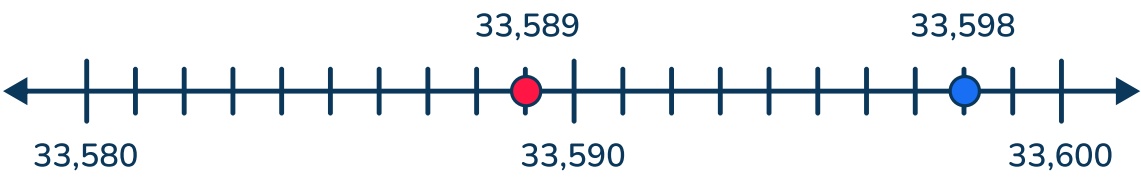
- 33,398 is greater than 33,589 because 33,598 has 9 tens and 8 ones while 33,589 has 8 tens and 9 ones. 9 tens and 8 ones or 98 ones is greater than 8 tens and 9 ones or 89 ones.

Fourth grade students apply their knowledge of place value to compare multi-digit numbers. This question requires understanding that numbers are compared by place value, in particular, the digits of greater value. Visual representations such as place value charts, base 10 blocks, and number lines are great tools to help organize students' thinking.

Ten thousands	Thousands	Hundreds	Tens	Ones
3	3	5	9	8
3	3	5	8	9

9 tens and 8 ones or 98 ones is greater than 8 tens and 9 ones or 89 ones.

33,598 is greater than 33,589.



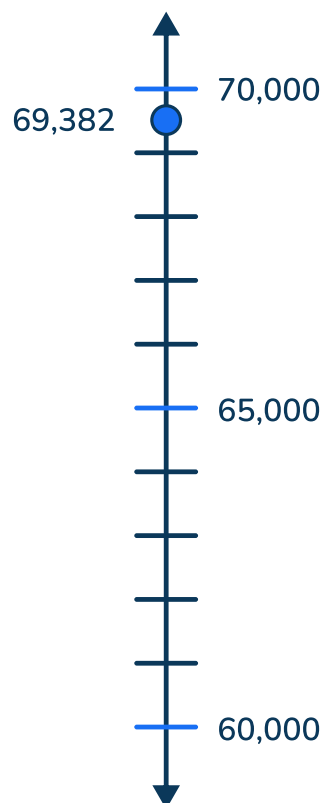
Place value

3. There were 69,382 fans at a baseball game. About how many fans were at the baseball game? The manager wants to know if the number of fans was closer to 60,000 or closer to 70,000.

Answer:

- ☐ There were about 70,000 fans at the baseball game.

Students continue to explore the concept of rounding, now to any place value. Rounding is key because it allows students to easily talk about numbers. Using a vertical number line is a great tool to help students visualize which benchmark a number is closest to. If students need more support finding the benchmark numbers, provide them with a 1-1000 chart.



Multiplication

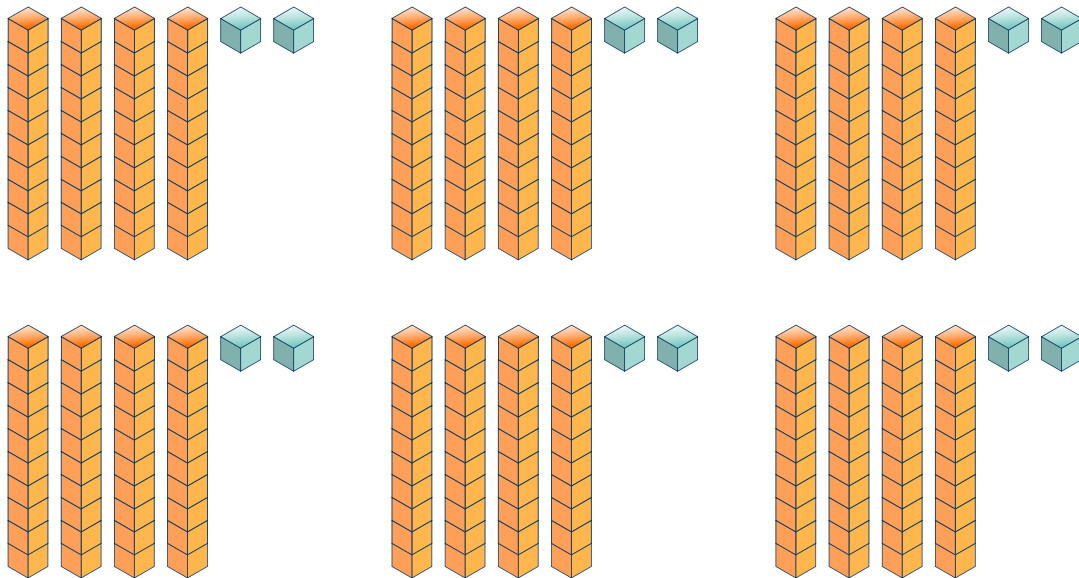
4. There are 6 bags with 42 carrots in each bag. How many carrots are there in all?

Answer:

☐ 252

Using concrete models to show the process (see below) helps students develop an important understanding that each digit in the 2-digit factor must be multiplied by the other factor.

Below is an example of how a student can use base-ten blocks to show 6 groups of 42 and see that it is the same as 6 groups of 40 and 6 groups of 2.



6 groups of 42

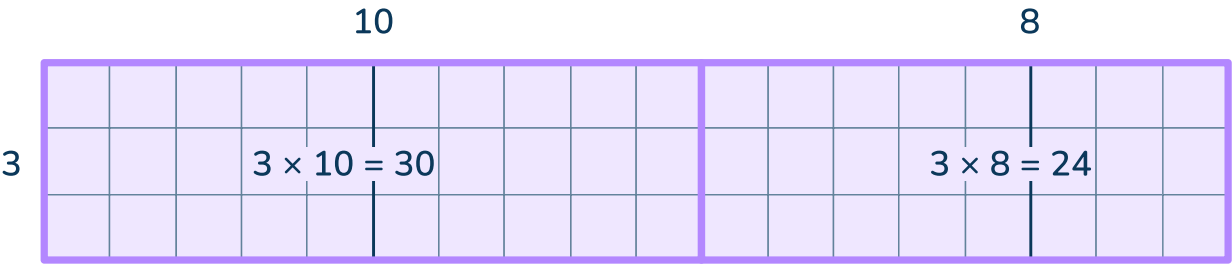
Multiplication

5. West Hill Elementary School is hosting a fifth grade field day. There will be 3 groups of 18 students attending. How many students will be attending fifth grade field day?

Answer:

☐ 54

Students then learn that they can multiply 3×18 by breaking apart the 18 into $10 + 8$ and then multiplying 3×10 and 3×8 and simply putting the two partial products together to find that $3 \times 18 = 54$. Graph paper is a great tool to support students' understanding!



Multiplication

6. Sam organized a 6-mile walk for charity. 128 people completed the walk. How many total miles did the people walk that day?

Answer:

☐ 768 miles

Once students understand the area model, they may transition into drawing rectangles to record the partial products. This becomes extremely useful when the factors get larger. It allows students to visualize the process and connect the distributive property to place value concepts.

	100	20	8
6	$6 \times 100 = 600$	$6 \times 20 = 120$	$6 \times 8 = 48$

$$600 + 120 + 48 = 768 \text{ miles}$$

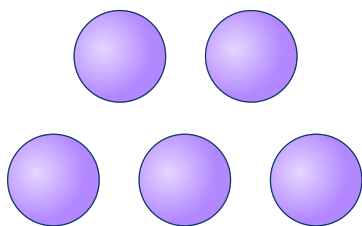
Multiplicative Comparison

7. Lenny has 5 bracelets. Carrie has 4 times as many bracelets as Lenny. How many bracelets does Carrie have?

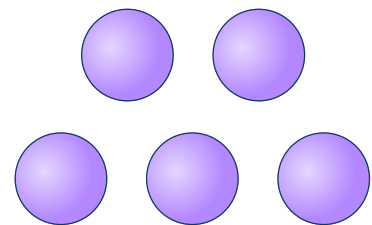
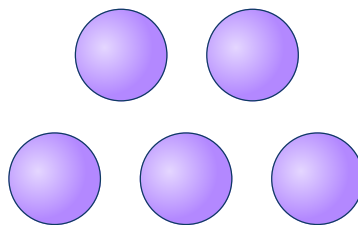
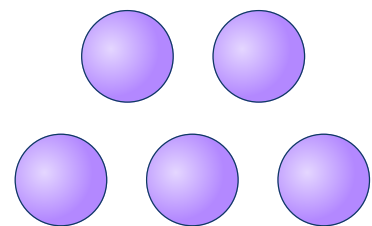
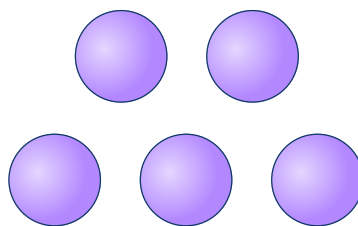
Answer:

- ☐ Carrie has 20 bracelets.

This multiplicative comparison word problem describes the first situation type, where the number being compared is unknown. Pictorial representations like the one below help students to visualize and represent the comparison.



Lenny
5 bracelets



Carrie
 $5 \times 4 = ?$ bracelets
 $5 \times 4 = 20$ bracelets

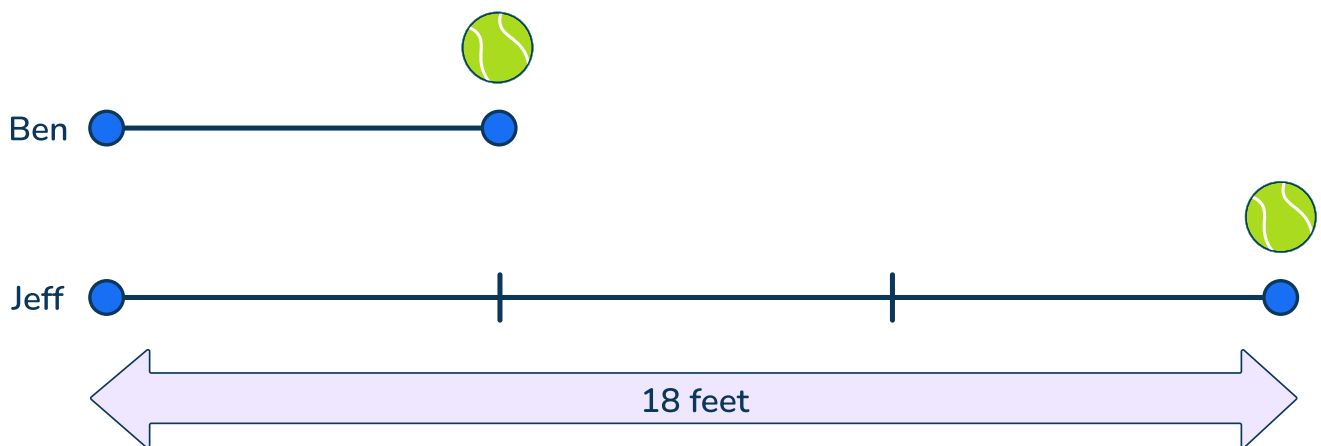
Multiplicative Comparison

8. Ben and Jeff were playing baseball. Jeff threw the baseball 18 feet which is 3 times farther than Ben did. How far did Ben throw the baseball?

Answer:

- ☐ Ben threw the baseball 6 feet.

Here, students are challenged to find the number that is being compared. The length model below helps to show that either multiplication or division can be used to solve this problem. Recognizing the inverse relationship between multiplication and division can support multiplicative comparison thinking.



$$? \times 3 = 18 \text{ feet}$$

$$6 \times 3 = 18 \text{ feet}$$

Ben threw the baseball 6 feet.

OR

$$? \times 3 = 18 \text{ feet is the same as } 18 \div 3 = ?$$

$$18 \div 3 = 6 \text{ feet}$$

Ben threw the baseball 6 feet.

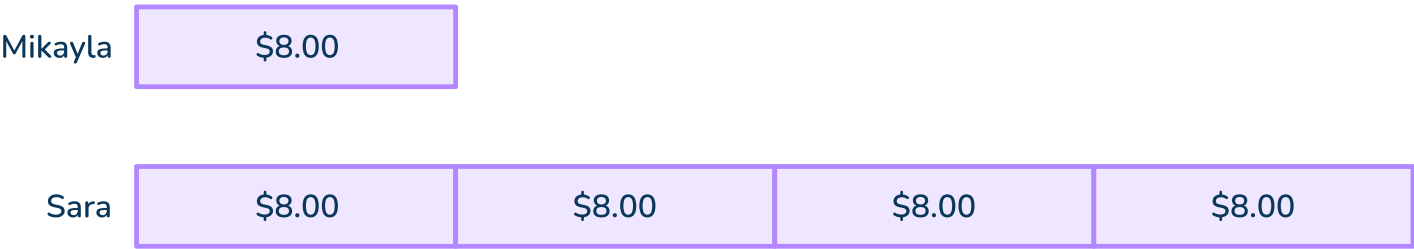
Multiplicative Comparison

9. Sara spent \$32.00 at the school store. Her friend Mikayla spent \$8.00. How many times as much money did Sara spend than Mikayla?

Answer:

- ☐ Sara spent 4 times as much as Mikayla at the school store.

Similarly, either multiplication or division can be used for this solution. This math word problem represents when the multiplier is unknown.



$8 \times ? = 32$

$8 \times 4 = 32$

Sara spent 4 times as much as Mikayla

$8 \times ? = 32$ is the same as $32 \div 8 = ?$

$32 \div 8 = 4$

Sara spent 4 times as much as Mikayla

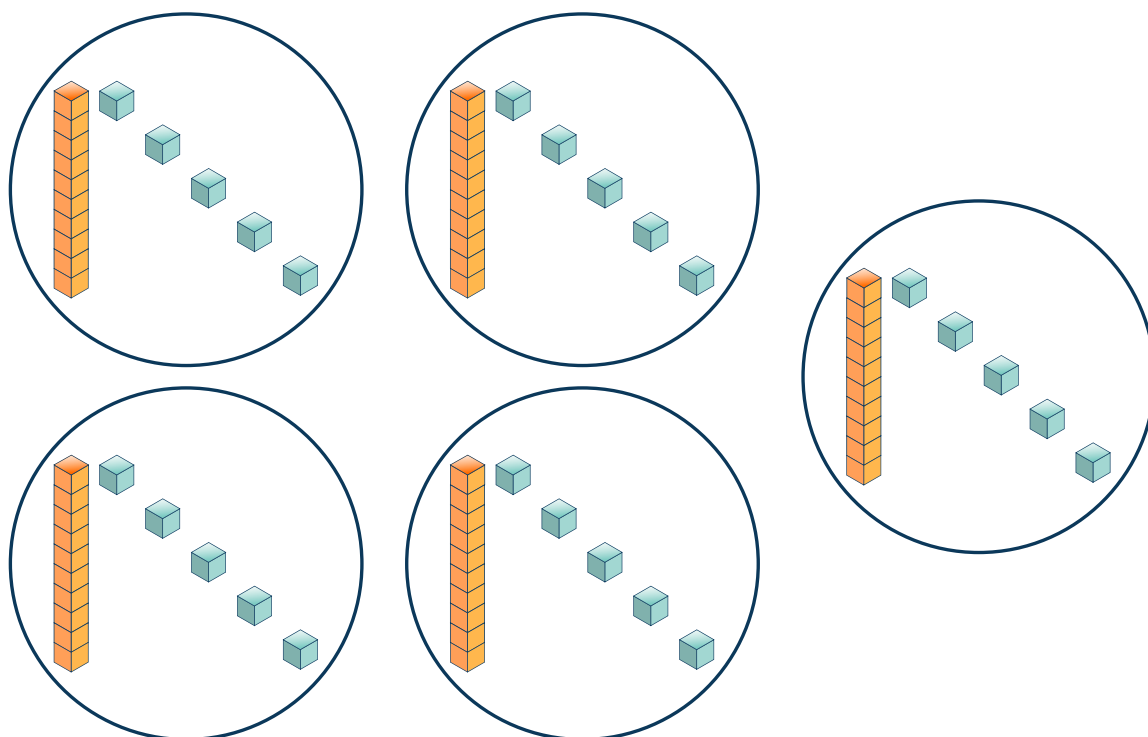
Division

10. Emma has 75 stickers. She wants to share them equally among her 5 friends. How many stickers can each friend get?

Answer:

- ☐ Each friend can get 15 stickers.

Students first experience quotients larger than 12 in fourth grade. Visual representations such as the one below help students visualize the meaning of division and will support their future understanding of interpreting the remainder.



Division

11. Janelle is planning a party. 344 people are coming. Each table seats 8 people. How many tables does Janelle need?

Answer:

☐ Janelle needs 43 tables.

Students transition their experiences to using the partial quotients strategy, which is shown below. This strategy highlights the relationship between multiplication and how it's the inverse of division by determining groups that can be subtracted from the dividend (total) until there are no parts left. This allows for more flexible thinking in finding the quotient.

344 ÷ 8 = ?

		4	3	
8	)	3	4	4
–		3	2	0
			2	4
		–	2	4
				0

8 × 40

8 × 3

Division

12. Ms. Evans has 125 oranges. 6 oranges can fit in each box. How many boxes does she need for all the oranges?

Answer:

☐ Ms. Evans needs 21 boxes.

Fourth grade is the first time students experience division problems where a remainder is left. In this problem, students are tasked with interpreting the remainder based on the context of the problem. Here, students need to understand that the 5 oranges leftover still need to be boxed, so Ms. Evans will need an additional box for those 5 oranges. Each word problem requires the remainder to be interpreted differently so provide opportunities for student discussion and exposure to a variety of word problems.

125 ÷ 6 = ?

		20	R5	
8	)	1	2	5
-		1	2	0
				5
				remainder

6 × 20

20 boxes with 6 oranges in each box holds 120 oranges. There are still 5 oranges leftover, so another- box will be needed. Ms. Evans needs 21 boxes overall.

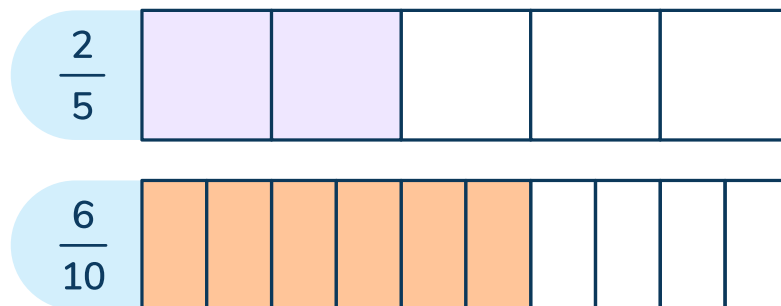
Fractions

13. Cheryl said that $\frac{2}{5}$ and $\frac{6}{10}$ are equivalent fractions. Do you agree or disagree? Prove it.

Answer:

- ☐ $\frac{2}{5}$ and $\frac{6}{10}$ are not equivalent fractions. When finding equivalent fractions, the numerator must be multiplied by the same number as the denominator. In this problem, $\frac{2}{5}$ is partitioned in half to create tenths. This means the numerator and denominator are both multiplied by two. $\frac{2}{5}$ is equivalent to $\frac{4}{10}$ because when you multiply the numerator by 2, you get 4, not 6.

This type of question requires students to understand the concept of equivalent fractions and reasonableness. Estimation is such an important skill because it can support students in the foundational skills of fractions and can be an asset when introduced to addition and subtraction of fractions. Concrete materials such as pattern blocks or fraction strips (as seen below) support students to visualize fractions.



$$\frac{2}{5} \times \frac{2}{2} = \frac{4}{10}$$

$$\frac{2}{5} \times \frac{2}{2} \neq \frac{6}{10}$$

Fractions

14. Ben ate $\frac{2}{4}$ of a candy bar and shared $\frac{1}{4}$ with his sister. How much of the candy bar did Ben and his sister eat?

Answer:

- ☐ Ben and his sister ate $\frac{3}{4}$ of the candy bar.

As students explore adding fractions, they must link these new concepts to their prior knowledge of adding with whole numbers. For this word problem, a bar model and a number line are great strategies for students to visually see fraction concepts. As students continue to work through their flexibility with whole numbers, they deepen their understanding of operations with fractions.

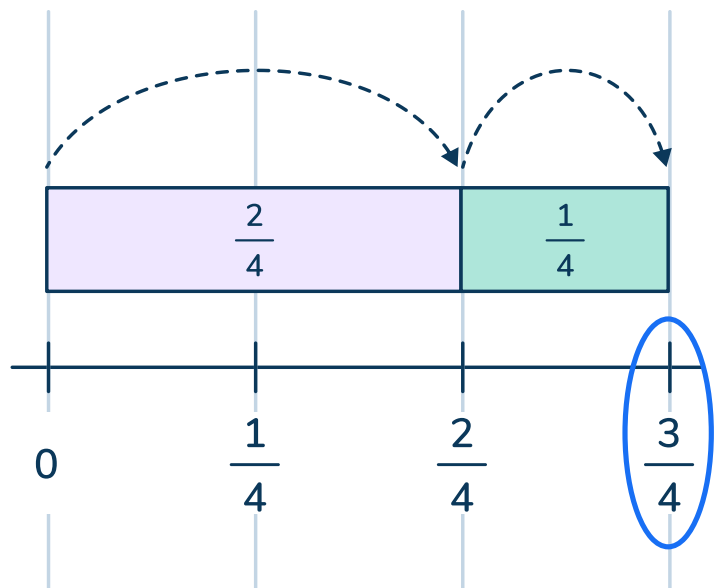


B = Ben

S = Sister

$$\frac{2}{4} + \frac{1}{4} = \frac{3}{4}$$

OR



Fractions

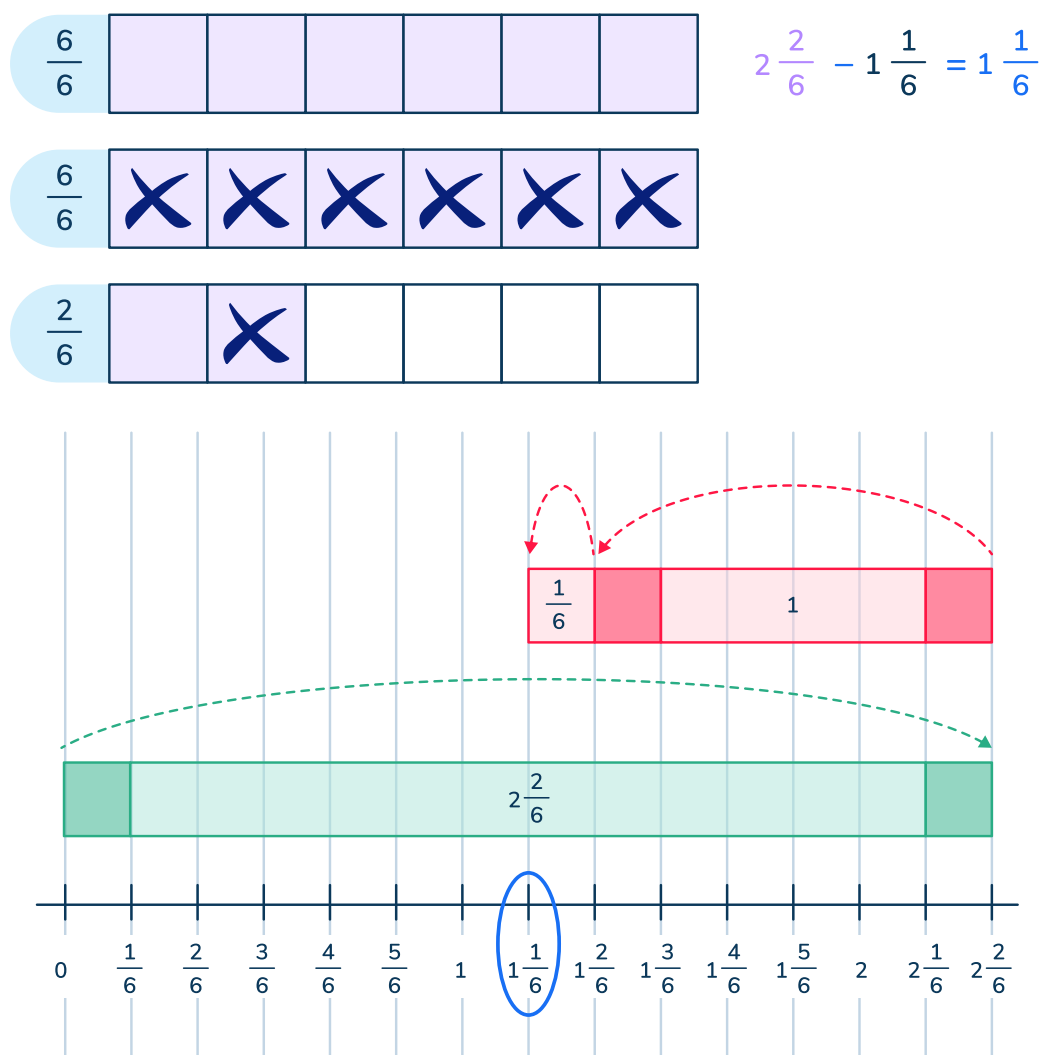
15. At the eighth grade dance at Malcom Middle School, the volunteers served $2\frac{2}{6}$ gallons of lemonade and $1\frac{1}{6}$ gallons of iced tea. How much more lemonade than iced tea was served?

Answer:

- ☐ $1\frac{1}{6}$ more gallons of lemonade were served than iced tea.

Similar to addition, students use their prior knowledge of subtraction and apply it to their new understanding of subtracting fractions.

Students can separate numbers into whole and fractional parts to get the final difference. Again, models such as bar models and number lines are strategies students are exposed to when subtracting whole numbers and are helpful representations to show subtracting fractions.



Decimals

16. Write each fraction as a decimal: $\frac{47}{100}$, $\frac{5}{10}$, $2\frac{7}{10}$, $8\frac{29}{100}$

Answer:

$\frac{47}{100} = 0.47$, $\frac{5}{10} = 0.5$, $2\frac{7}{10} = 2.7$, $8\frac{29}{100} = 8.29$

In this problem, students are asked to bridge the concepts of fractions and decimals. Fourth grade math requires students to understand that fractions with denominators based on tens can be written as a decimal.

This understanding relies on a student’s background knowledge of place value relationships. Teachers can connect this idea using the same manipulatives they used to introduce fractions, such as number charts.

0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
0.09	0.19	0.29	0.39	0.49	0.59	0.69	0.79	0.89	0.99
0.08	0.18	0.28	0.38	0.48	0.58	0.68	0.78	0.88	0.98
0.07	0.17	0.27	0.37	0.47	0.57	0.67	0.77	0.87	0.97
0.06	0.16	0.26	0.36	0.46	0.56	0.66	0.76	0.86	0.96
0.05	0.15	0.25	0.35	0.45	0.55	0.65	0.75	0.85	0.95
0.04	0.14	0.24	0.34	0.44	0.54	0.64	0.74	0.84	0.94
0.03	0.13	0.23	0.33	0.43	0.53	0.63	0.73	0.83	0.93
0.02	0.12	0.22	0.32	0.42	0.52	0.62	0.42	0.82	0.92
0.01	0.11	0.21	0.31	0.41	0.51	0.61	0.71	0.81	0.91

0.47

$\frac{10}{100}$	$\frac{20}{100}$	$\frac{30}{100}$	$\frac{40}{100}$	$\frac{50}{100}$	$\frac{60}{100}$	$\frac{70}{100}$	$\frac{80}{100}$	$\frac{90}{100}$	$\frac{100}{100}$
$\frac{9}{100}$	$\frac{19}{100}$	$\frac{29}{100}$	$\frac{39}{100}$	$\frac{49}{100}$	$\frac{59}{100}$	$\frac{69}{100}$	$\frac{79}{100}$	$\frac{89}{100}$	$\frac{99}{100}$
$\frac{8}{100}$	$\frac{18}{100}$	$\frac{28}{100}$	$\frac{38}{100}$	$\frac{48}{100}$	$\frac{58}{100}$	$\frac{68}{100}$	$\frac{78}{100}$	$\frac{88}{100}$	$\frac{98}{100}$
$\frac{7}{100}$	$\frac{17}{100}$	$\frac{27}{100}$	$\frac{37}{100}$	$\frac{47}{100}$	$\frac{57}{100}$	$\frac{67}{100}$	$\frac{77}{100}$	$\frac{87}{100}$	$\frac{97}{100}$
$\frac{6}{100}$	$\frac{16}{100}$	$\frac{26}{100}$	$\frac{36}{100}$	$\frac{46}{100}$	$\frac{56}{100}$	$\frac{66}{100}$	$\frac{76}{100}$	$\frac{86}{100}$	$\frac{96}{100}$
$\frac{5}{100}$	$\frac{15}{100}$	$\frac{25}{100}$	$\frac{35}{100}$	$\frac{45}{100}$	$\frac{55}{100}$	$\frac{65}{100}$	$\frac{75}{100}$	$\frac{85}{100}$	$\frac{95}{100}$
$\frac{4}{100}$	$\frac{14}{100}$	$\frac{24}{100}$	$\frac{34}{100}$	$\frac{44}{100}$	$\frac{54}{100}$	$\frac{64}{100}$	$\frac{74}{100}$	$\frac{84}{100}$	$\frac{94}{100}$
$\frac{3}{100}$	$\frac{13}{100}$	$\frac{23}{100}$	$\frac{33}{100}$	$\frac{43}{100}$	$\frac{53}{100}$	$\frac{63}{100}$	$\frac{73}{100}$	$\frac{83}{100}$	$\frac{93}{100}$
$\frac{2}{100}$	$\frac{12}{100}$	$\frac{22}{100}$	$\frac{32}{100}$	$\frac{42}{100}$	$\frac{52}{100}$	$\frac{62}{100}$	$\frac{72}{100}$	$\frac{82}{100}$	$\frac{92}{100}$
$\frac{1}{100}$	$\frac{11}{100}$	$\frac{21}{100}$	$\frac{31}{100}$	$\frac{41}{100}$	$\frac{51}{100}$	$\frac{61}{100}$	$\frac{71}{100}$	$\frac{81}{100}$	$\frac{91}{100}$

$$\frac{47}{100}$$

Decimals

17. Compare the following decimals: 0.65 and 0.46

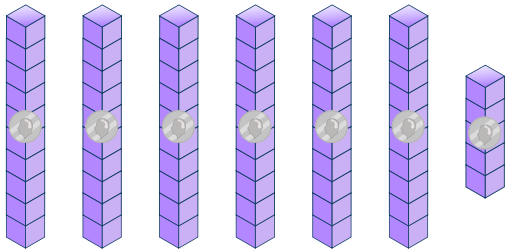
Answer:

- 0.65 is greater than 0.46. 0.46 is less than 0.65. Both decimals are less than 1.

Fourth grade math requires students to know the difference between tenths and hundredths. Using models such as number charts and coins help students visualize the concept of comparing decimals and support them in making connections to their whole-number place value knowledge.

<u>10</u>	<u>20</u>	<u>30</u>	<u>40</u>	<u>50</u>	<u>60</u>	<u>70</u>	<u>80</u>	<u>90</u>	<u>100</u>
<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
<u>9</u>	<u>19</u>	<u>29</u>	<u>39</u>	<u>49</u>	<u>59</u>	<u>69</u>	<u>79</u>	<u>89</u>	<u>99</u>
<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
<u>8</u>	<u>18</u>	<u>28</u>	<u>38</u>	<u>48</u>	<u>58</u>	<u>68</u>	<u>78</u>	<u>88</u>	<u>98</u>
<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
<u>7</u>	<u>17</u>	<u>27</u>	<u>37</u>	<u>47</u>	<u>57</u>	<u>67</u>	<u>77</u>	<u>87</u>	<u>97</u>
<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
<u>6</u>	<u>16</u>	<u>26</u>	<u>36</u>	<u>46</u>	<u>56</u>	<u>66</u>	<u>76</u>	<u>86</u>	<u>96</u>
<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
<u>5</u>	<u>15</u>	<u>25</u>	<u>35</u>	<u>45</u>	<u>55</u>	<u>65</u>	<u>75</u>	<u>85</u>	<u>95</u>
<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
<u>4</u>	<u>14</u>	<u>24</u>	<u>34</u>	<u>44</u>	<u>54</u>	<u>64</u>	<u>74</u>	<u>84</u>	<u>94</u>
<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
<u>3</u>	<u>13</u>	<u>23</u>	<u>33</u>	<u>43</u>	<u>53</u>	<u>63</u>	<u>73</u>	<u>83</u>	<u>93</u>
<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
<u>2</u>	<u>12</u>	<u>22</u>	<u>32</u>	<u>42</u>	<u>52</u>	<u>62</u>	<u>72</u>	<u>82</u>	<u>92</u>
<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
<u>1</u>	<u>11</u>	<u>21</u>	<u>31</u>	<u>41</u>	<u>51</u>	<u>61</u>	<u>71</u>	<u>81</u>	<u>91</u>
<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>

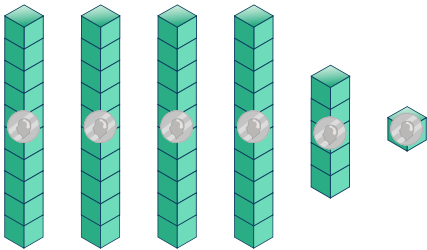
0.65



0.65

<u>10</u>	<u>20</u>	<u>30</u>	<u>40</u>	<u>50</u>	<u>60</u>	<u>70</u>	<u>80</u>	<u>90</u>	<u>100</u>
<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
<u>9</u>	<u>19</u>	<u>29</u>	<u>39</u>	<u>49</u>	<u>59</u>	<u>69</u>	<u>79</u>	<u>89</u>	<u>99</u>
<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
<u>8</u>	<u>18</u>	<u>28</u>	<u>38</u>	<u>48</u>	<u>58</u>	<u>68</u>	<u>78</u>	<u>88</u>	<u>98</u>
<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
<u>7</u>	<u>17</u>	<u>27</u>	<u>37</u>	<u>47</u>	<u>57</u>	<u>67</u>	<u>77</u>	<u>87</u>	<u>97</u>
<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
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<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
<u>5</u>	<u>15</u>	<u>25</u>	<u>35</u>	<u>45</u>	<u>55</u>	<u>65</u>	<u>75</u>	<u>85</u>	<u>95</u>
<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
<u>4</u>	<u>14</u>	<u>24</u>	<u>34</u>	<u>44</u>	<u>54</u>	<u>64</u>	<u>74</u>	<u>84</u>	<u>94</u>
<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
<u>3</u>	<u>13</u>	<u>23</u>	<u>33</u>	<u>43</u>	<u>53</u>	<u>63</u>	<u>73</u>	<u>83</u>	<u>93</u>
<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
<u>2</u>	<u>12</u>	<u>22</u>	<u>32</u>	<u>42</u>	<u>52</u>	<u>62</u>	<u>72</u>	<u>82</u>	<u>92</u>
<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
<u>1</u>	<u>11</u>	<u>21</u>	<u>31</u>	<u>41</u>	<u>51</u>	<u>61</u>	<u>71</u>	<u>81</u>	<u>91</u>
<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>

0.46



0.46

Decimals

18. Sort the following decimals into the groups below:

0.23 0.99 0.18 0.07 0.73 0.55 0.31 0.64

Closer to 0	Closer to 1

Answer:

Closer to 0

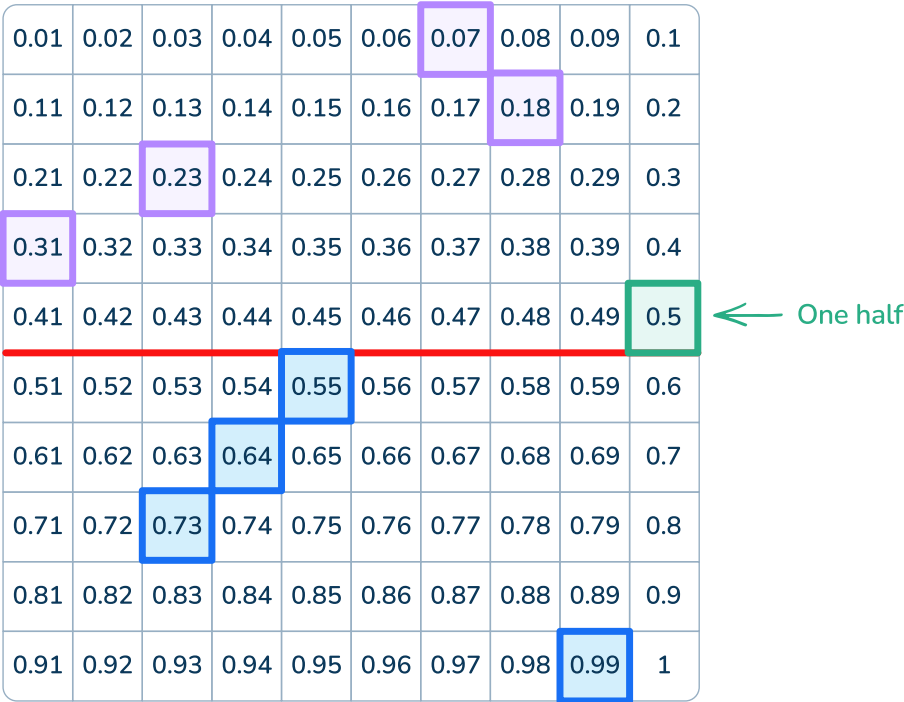
Closer to 1

0.23
0.18
0.07
0.31

0.99
0.73
0.55
0.64

This reasoning problem will support students in adding and subtracting decimals in 5th grade.

By using benchmarks such as 0, 0.5, and 1, students can define the magnitude of a decimal in regards to how large/small a tenth or hundredth is. Money is a great tool for this type of problem, as well as a number chart (seen below).



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Michelle Craig, Instructional Coach,
Sherwood Forest Elementary, Washington

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